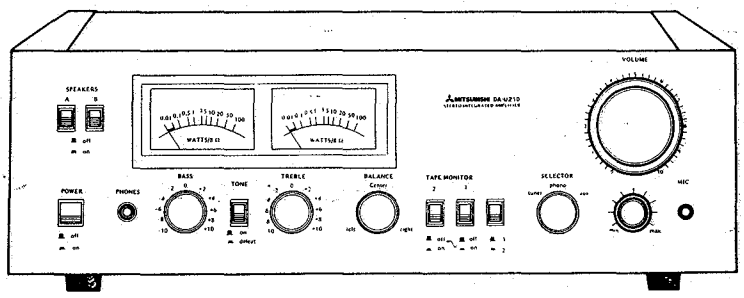
MITSUBISHI
AUDIO SYSTEMS

SERVICE MANUAL

STEREO INTEGRATED AMPLIFIER

MODEL DA-U210



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MITSUBISHI ELECTRIC CORPORATION

SPECIFICATIONS

1. PREAMPLIFIER SECTION

Input sensitivity/impedance (at continuous rated power output, 8 ohms 1 kHz)	
PHONO	2.5 mV/50 kohms
TUNER, AUX, PLAY 1, 2 (PIN)	150 mV/35 kohms
PLAY 1, 2 (DIN)	150 mV/35 kohms
MIC	1 mV/10 kohms
Phono overload level (at 1 kHz, with 0.1% THD)	
PHONO	200 mV
Output level/impedance	
RED 1, 2 (PIN)	150 mV/600 ohms
REC 1, 2 (DIN)	50 mV/100 kohms
Frequency response	
PHONO	±0.5 dB from 20 Hz to 20 kHz (RIAA STD)
TUNER, AUX, PLAY 1, 2	$^{+0}_{-1}$ dB from 10 Hz to 60 kHz (in TONE DEFEAT switch ON position)
Tone control	
BASS	±8 dB at 100 Hz
TREBLE	±8 dB at 10 kHz
Loudness (Volume control set at -30 dB position)	+7 dB at 100 Hz +5 dB at 10 kHz
Hum and noise (A network closed circuit)	
PHONO	74 dB
TUNER, AUX, PLAY 1, 2	100 dB
Hum and noise (DIN, 50 mW x 2)	
PHONO	63 dB
TUNER, AUX, PLAY 1, 2	65 dB

2. POWER AMPLIFIER SECTION

Power output	25 W continuous power per channel, both channels driven into 8 ohms from 20 Hz to 20 kHz, with 0.1% THD 30 W continuous power per channel, both channels driven into 4 ohms from 20 Hz to 20 kHz, with 0.5% THD
Total harmonic distortion	0.06% at 12.5 W per channel, both channels driven into 8 ohms from 20 Hz to 20 kHz 0.06% at 1 W per channel, both channels driven into 8 ohms from 20 Hz to 20 kHz
Intermodulation distortion (70 Hz and 7 kHz, 4 : 1)	0.2% at rated power per channel, 8 ohms 0.1% at 1 W power per channel, 8 ohms
Power bandwidth (IHF)	10 Hz to 40 kHz at 0.1% THD, 8 ohms
Damping factor	25 from 20 Hz to 20 kHz, 8 ohms

3. GENERAL

Power consumption	140 W (IEC nominal) 110 W at rated power, 8 ohms
Dimensions (W x H x D)	425 x 139 x 324 mm
Weight	8 kg

Design and specifications are subject to change without notice for improvement.

FRONT PANEL TERMINOLOGY AND FUNCTIONS

1. SPEAKERS (Speaker Selection Switches)
These switches control speaker selection.

A	B	
▬	▬	Outputs are off and no sound will be produced from the speakers.
▬	▬	For listening to the speakers connected to the terminals A.
▬	▬	For listening to the speakers connected to the terminals B.
▬	▬	For listening to the speakers connected to the terminals A and B.

2. POWER METER (R & L)
This meter shows the power output of this unit connected to speakers having an impedance of 8 ohms. They have a power scale of 0.01 W to 50 W.

3. LOUDNESS (Loudness Switch)
This switch introduces a special low and high frequency emphasis at low listening levels. This is done because the human ear is less sensitive to these frequencies at low listening levels. Select the position according to your personal preference.

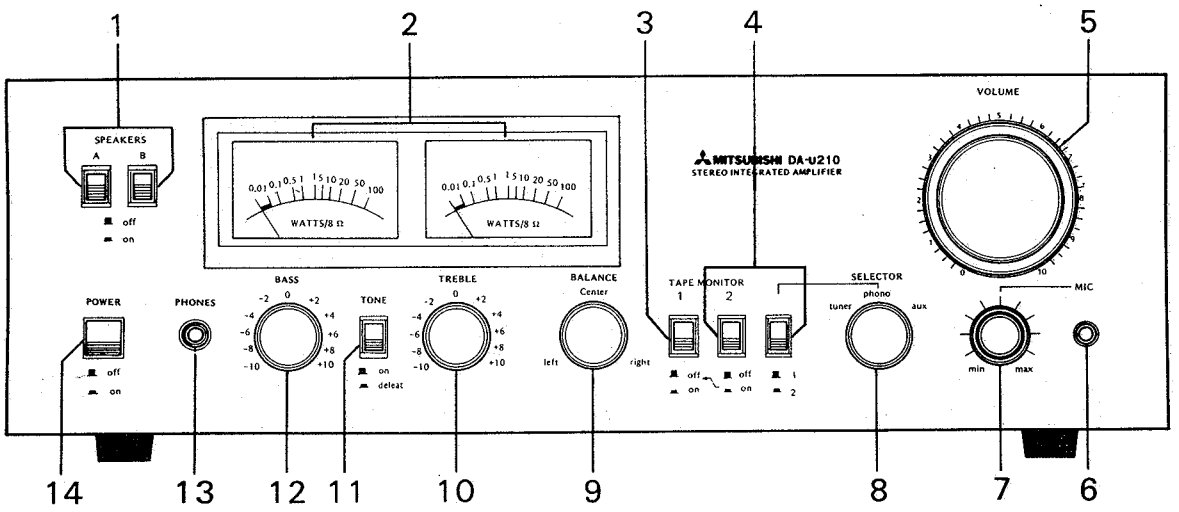
4. TAPE MONITOR (Tape Monitor and Duplicate Switches)
This switch is used for monitoring either the program source being recorded or the playback from the tape deck, and duplicating from tape to tape.

2	1	
▬	▬	In this position, you can reproduce the program sources set by the SELECTOR switch and record them with tape deck connected to REC 1 and REC 2 outputs.
▬	▬	For playing or record monitoring of the tape deck connected to PLAY 1 inputs, and duplicating from the tape deck connected to PLAY 1 inputs to the tape deck connected to REC 2 outputs.
▬	▬	For playing or record monitoring of the tape deck connected to PLAY 2 inputs.

5. VOLUME (Volume Control)
This control adjusts the sound volume from the speakers. The volume is increased by rotating clockwise, and decreased by rotating counterclockwise.

6. MIC (Microphone Input)
For mixing the sounds with microphone, plug the microphone into this input.

7. MICROPHONE VOLUME CONTROL
This control adjusts the sound of the microphone.
The volume is increased by rotating clockwise, and decreased by rotating counterclockwise.



8. SELECTOR (Input Selection Switch)
This switch selects the desired program source.

TUNER — For listening to programs on the tuner connected to the TUNER inputs.

PHONO — This position is used for playing a disc on the turntable connected to the PHONO inputs.

AUX — For playing a second tuner, turntable output ceramic cartridge, tape deck for playback use, television audio, or any suitable high output sources connected to the AUX inputs.

9. BALANCE (Balance Control)
This control adjusts the balance between the two channels. The sound image is normally balanced at the center, shifted to the right side when this control is turned to the right, and to the left side when turned to the left. Adjust the control to match the position of the speaker systems and your listening position.

10. TREBLE (Treble Control)
This control varies the sound level of the high frequency range on the right and left channels. Moving clockwise from "0" increases treble, while moving counterclockwise from "0" attenuates treble. Select the best position to suit the characteristics of your speakers and listening room, or personal preference.

11. TONE (Tone Defeat Switch)
This switch is used for cancelling the TREBLE and BASS controls on right and left channels.

ON — Both TREBLE and BASS controls can be adjusted.

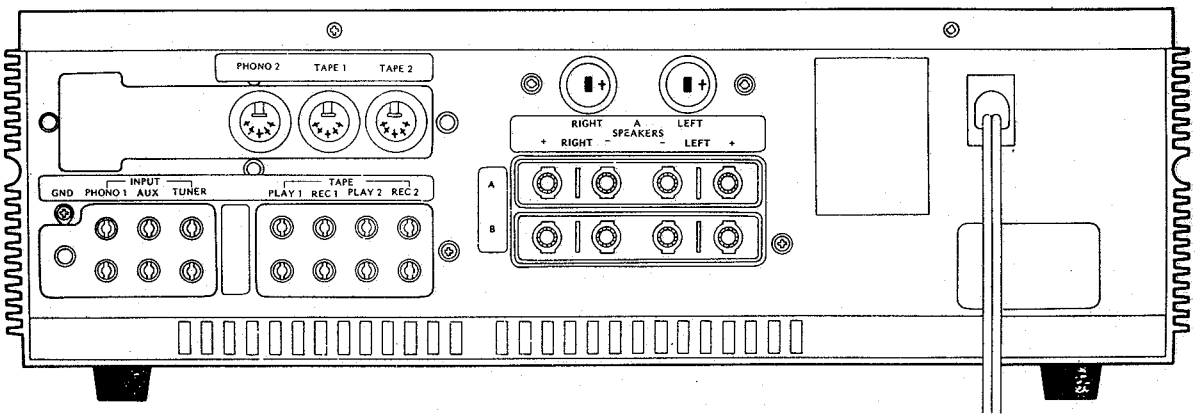
DEFEAT — In this position, TREBLE and BASS controls are removed from the signal path and a flat frequency response is obtained.

12. BASS (Bass Control)
This control varies the sound level of the low frequency range on the right and left channels. Moving clockwise from "0" increases bass, while moving counterclockwise from "0" attenuates bass. Select the best position to suit the characteristics of your speakers and listening room, or personal preference.

13. PHONES (Headphones Output)
For stereo listening with headphones, plug the headphones into this output.

14. POWER (Power Switch)
This switch is for turning this unit on and off. When in the ON position, the power meters are illuminated.

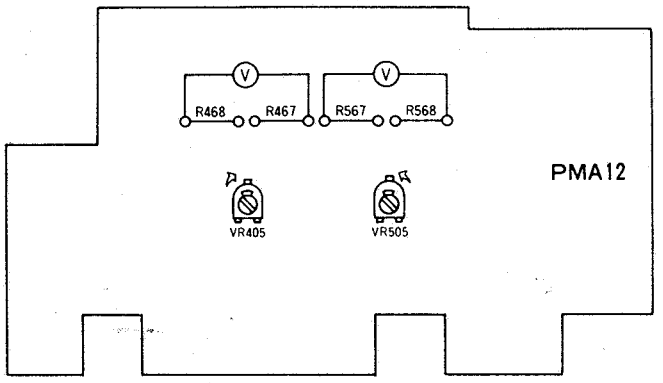
REAR PANEL



ADJUSTMENTS

1. Idling current adjustment

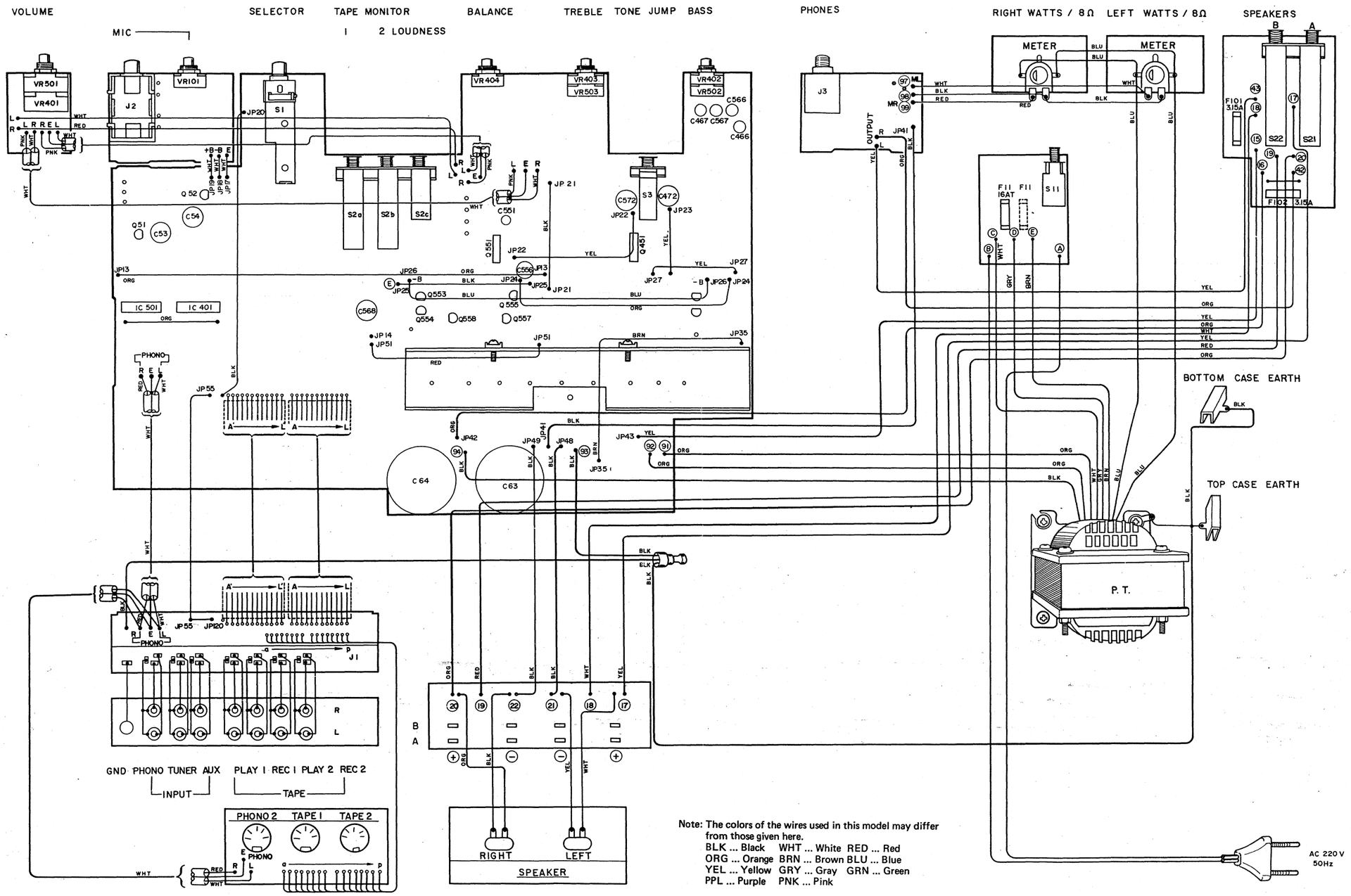
(1) Rotate VR405 and VR505 in the opposite direction to that given by the arrows as far as they will go.
(2) Switch the power ON.
(3) Now rotate VR405 and VR505 in the direction indicated by the arrows so that the voltage at both ends of R467 – R468 and R567 – R568 is brought to 27 ± 5 mV.



SERVICE PARTS LIST

MODEL DA-U210

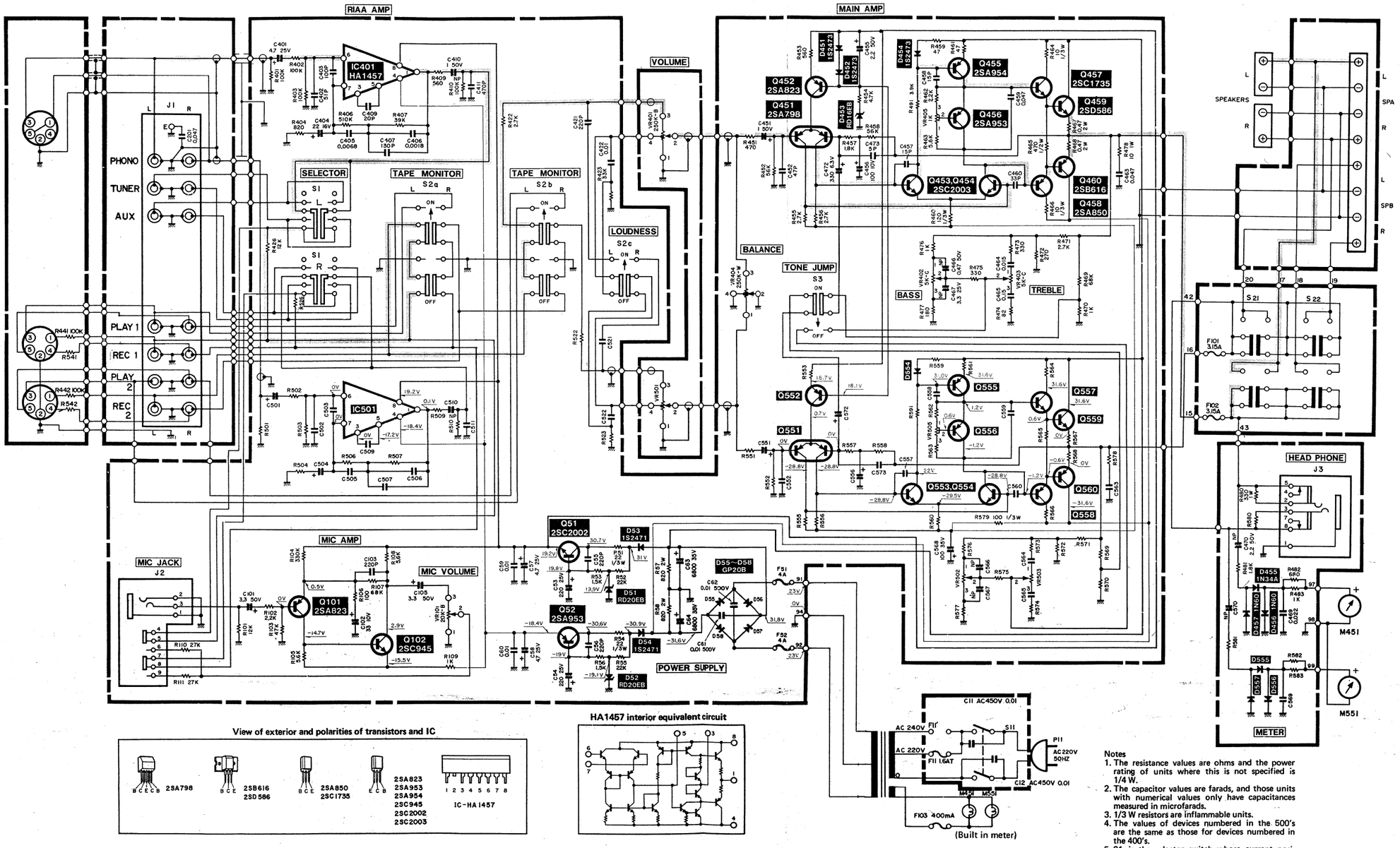
PART IDENTIFICATION	PART NO.	DESCRIPTION
Q101,452,552	M05104312	TRANSISTOR 2SA823
Q102	M07229304	TRANSISTOR 2SC945
Q51	M07229305	TRANSISTOR 2SC2002
Q52	M07229303	TRANSISTOR 2SA953
Q451,551	M07133303	TRANSISTOR 2SA798
Q453,454,553,554	M07229306	TRANSISTOR 2SC2003
Q455,555	M07229307	TRANSISTOR 2SA954
Q457,557	M07128303	TRANSISTOR 2SC1735
Q458,558	M07133304	TRANSISTOR 2SA850
Q459,559	M07229308	TRANSISTOR 2SD586
Q460,560	M07229309	TRANSISTOR 2SB616
Q456,556	M07229303	TRANSISTOR 2SA953
D51,52	M07229320	DIODE RD-20EB
D53,54	M07113321	DIODE IS2471
D55~ 58	M07229323	DIODE GP20B
D451,452,454,554	M07060320	DIODE IS2473
D453	M07229321	DIODE RD16EB
D455,555	M07229322	DIODE IN34A
D456,457,556,557	M04097320	DIODE IN60
IC401,501	M07229343	IC HA1457
S1	M07229450	SW-ROTARY
S2a~S2c	M07229451	SW-PUSH
S3	M07229452	SW-PUSH
S21 (S22)	M07362450	SW-PUSH
S11	M05113430	SW-PUSH
J2	M07229475	JACK (MIC)
J3	M07229476	JACK (HEADPHONE)
VR101	M07229400	VR-STD A20K20 (MIC LEVEL)
VR404	M07229401	VR-STD-W250K20
VR401,501	M07229402	VR-W-B250K25
VR402,403,502,503	M07229403	VR-W-C5K20
T11	M07362549	TRANS POWER
	M05110472	FUSE 1A SEMCO
F51,52	M07362490	FUSE 4A SEMKO
F101,102	M07362491	FUSE 3.15 A SEMKO
F11	M07362492	FUSE 1.6 A SEMKO
M451,551	M07229261	METER
	M07361210	KNOB
	M07361211	KNOB
	M07229210	KNOB
	M07229211	KNOB
	M07229212	KNOB
	M07215195	LEG



Note: The colors of the wires used in this model may differ from those given here.

BLK ... Black WHT ... White RED ... Red
ORG ... Orange BRN ... Brown BLU ... Blue
YEL ... Yellow GRY ... Gray GRN ... Green
PPL ... Purple PNK ... Pink

MATIC DIAGRAM



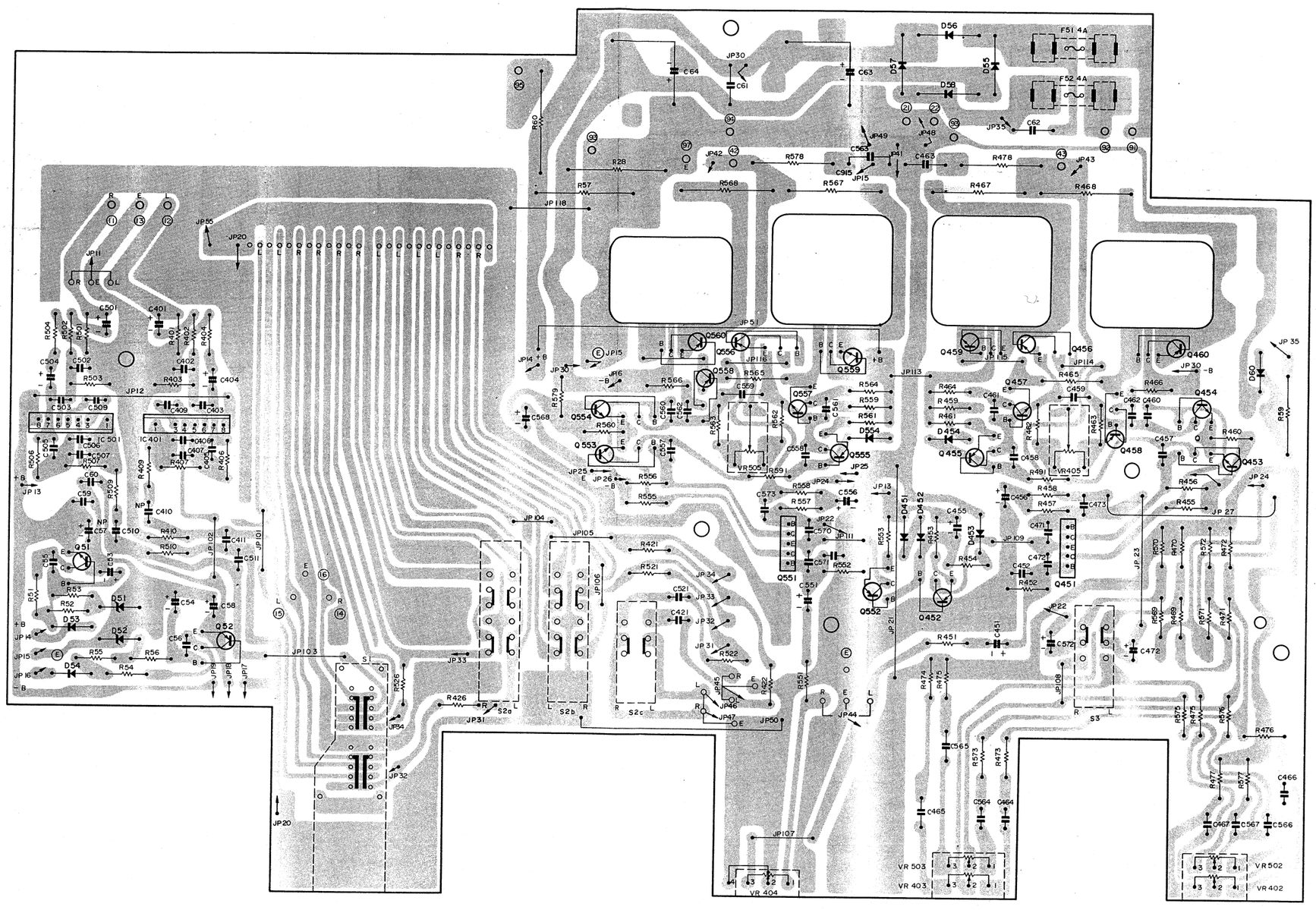
View of exterior and polarities of transistors and IC

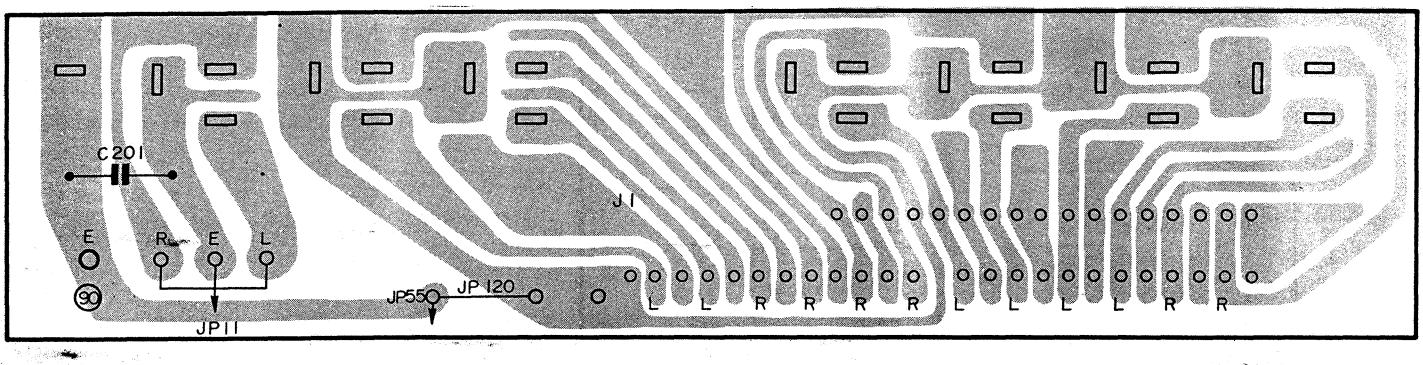
HA1457 interior equivalent circuit

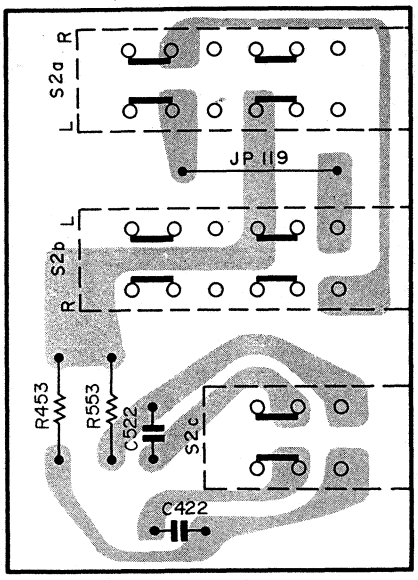
Notes

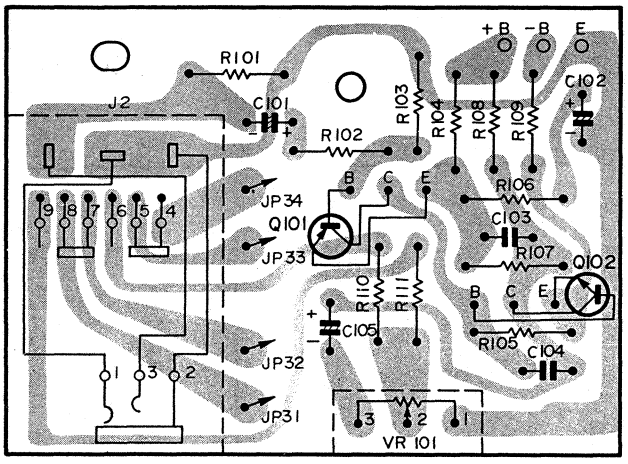
1. The resistance values are ohms and the power rating of units where this is not specified is 1/4 W.
2. The capacitor values are farads, and those units with numerical values only have capacitances measured in microfarads.
3. 1/3 W resistors are inflammable units.
4. The values of devices numbered in the 500's are the same as those for devices numbered in the 400's.
5. S1 is the selector switch whose current position is AUX and whose positions are set to PHONO and TUNER when the switch is rotated clockwise.
   S2a is the tape monitor 1 switch and S2b is the tape monitor 2 switch. They are both at the OFF state.

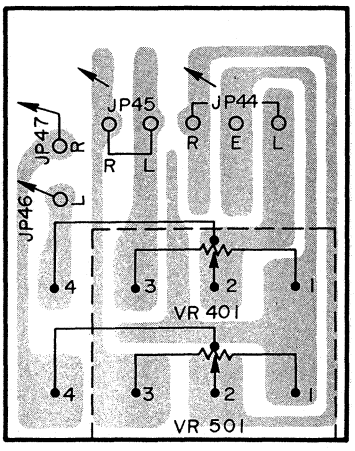
PMA-12
U241A079

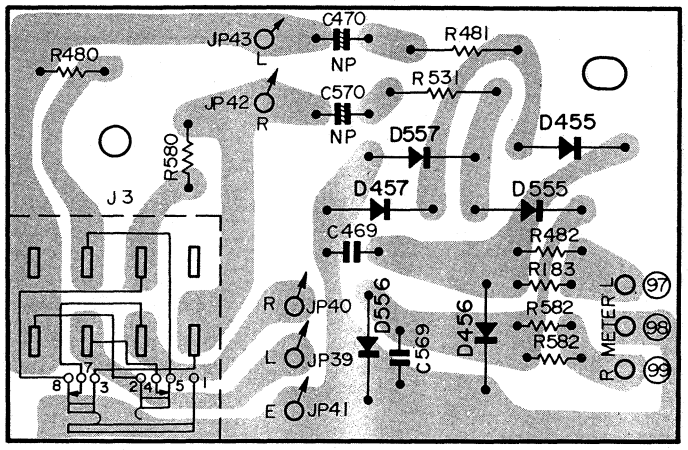



C201
E
R
E
L
90
JP11
JP55
JP 120
J1
L L R R R R L L L L R R

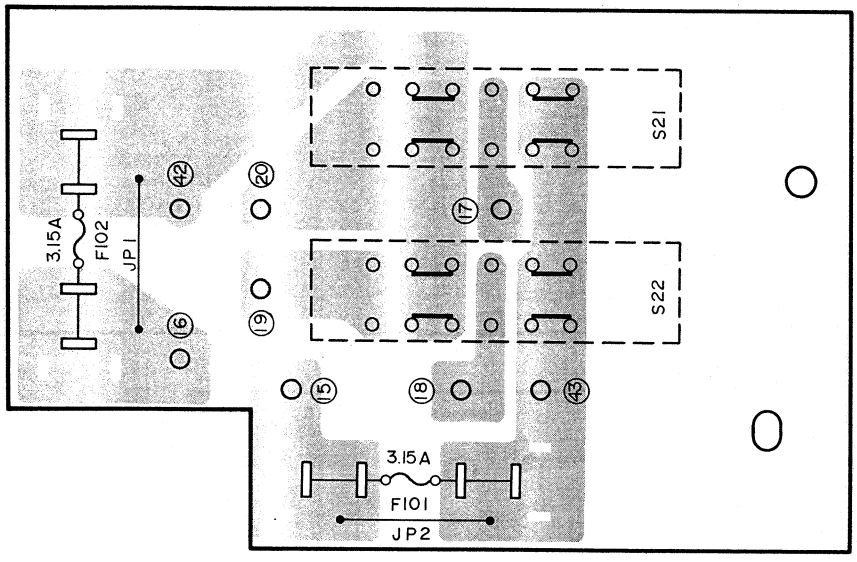

S2a R
L
JP 119
S2b L
R
R453
R553
C522
S2c
C422

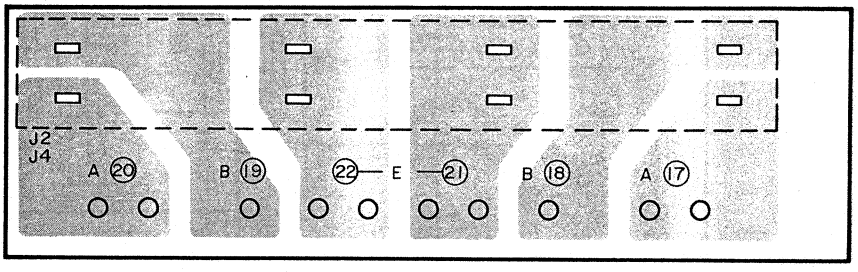

+B -B E
R101
J2
C101
R102
R103
R104
R108
R109
C102
JP34
B C E
Q101
JP33
R106
C103
R107
Q102
B C E
R110
R111
C105
R105
C104
JP32
JP31
VR 101


JP47
R
L
JP46
JP45
R L
JP44
R E L
VR 401
VR 501


R480
JP43
L
C470
NP
R481
JP42
R
C570
NP
R531
R580
D455
D557
D457
D555
J3
C469
R482
R183
R
JP40
L
JP39
E
JP41
D556
C569
D456
R582
R582
METER L
R
97
98
99

CTL-33
U241C529





CTL-32
U241C528